

Homework

Textbook pages 342 & 343
1, 2, 6-13,

Area of Composite Figures

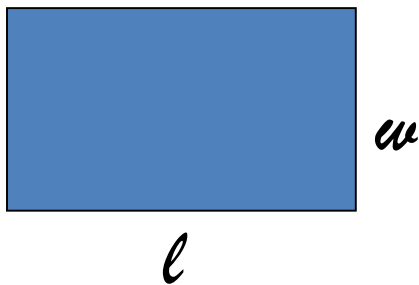
8.4

Key Idea

To find the area of a composite figure, separate it into figures with areas you know how to find. Then find the sum of the areas of those figures.

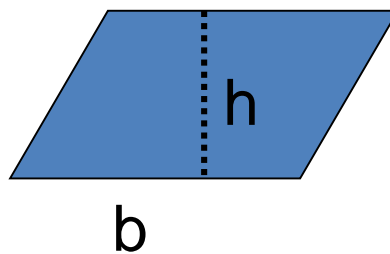
Area of Rectangle

$$A = \ell w$$



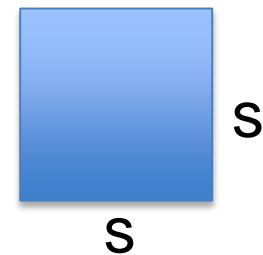
Area of Parallelogram

$$A = bh$$



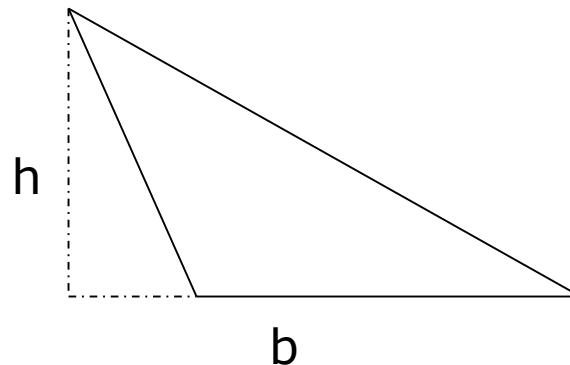
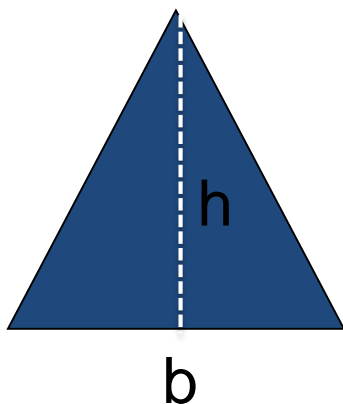
Area of Square

$$A = s^2$$



Area of Triangle

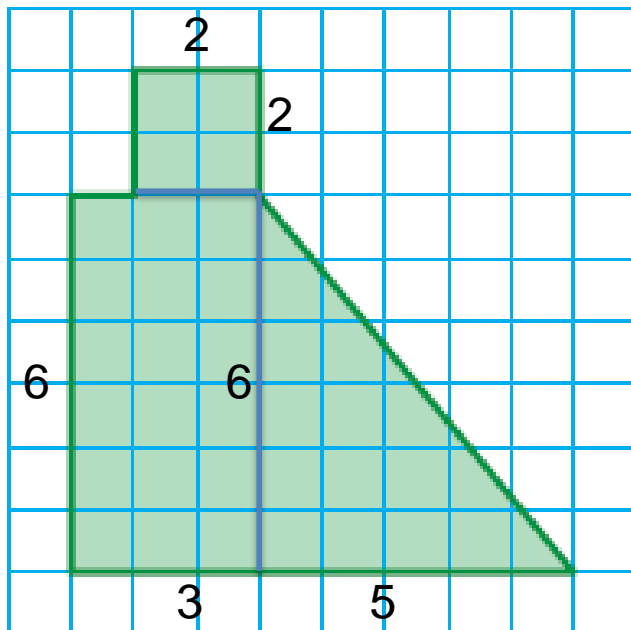
$$A = \frac{1}{2}bh$$



EXAMPLE

1

Finding an Area Using Grid Paper



What shapes make up this figure?

Square

$$A = s^2$$

Rectangle

$$A = lw$$

Triangle

$$A = \frac{1}{2}bh$$

Square

$$A = 2^2$$

$$A = 4 \text{ units}^2$$

Rectangle

$$A = 6(3)$$

$$A = 18 \text{ units}^2$$

Triangle

$$A = \frac{1}{2}(5)(6)$$

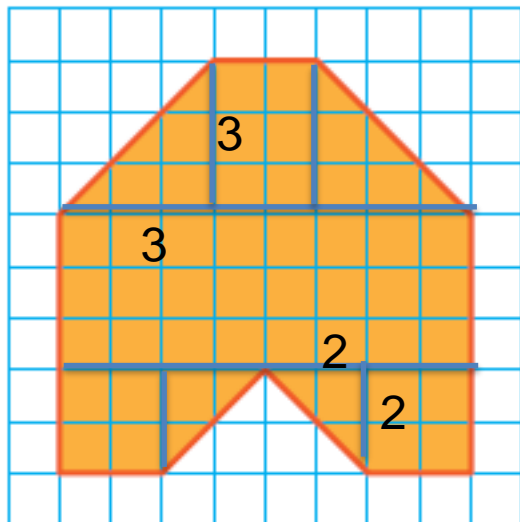
$$A = \frac{1}{2}30$$

Area of Composite Figure

$$A = 4 + 18 + 15$$

$$A = 37 \text{ units}^2$$

$$A = 15 \text{ units}^2$$

EXAMPLE**1****Finding an Area Using Grid Paper**

What shapes make up this figure?

Triangles

Rectangles

Squares

2 Large Triangles

$$A = \frac{1}{2}(3)(3)$$

$$A = \frac{1}{2}(9)$$

$$A = 4.5 \text{ units}^2$$

$$A = 2 \times 4.5 \text{ units}^2$$

$$A = 9 \text{ units}^2$$

2 small Triangles

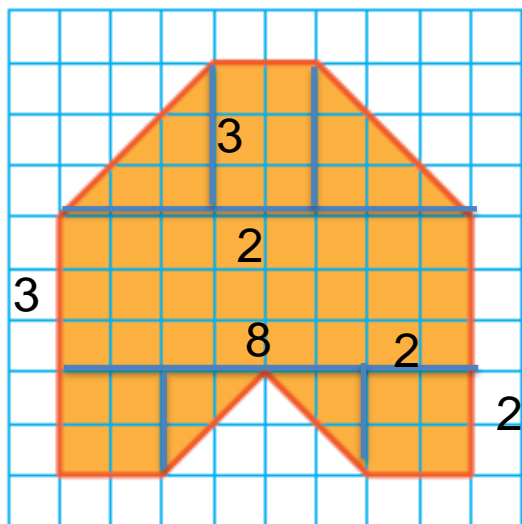
$$A = \frac{1}{2}(2)(2)$$

$$A = \frac{1}{2}(4)$$

$$A = 2 \text{ units}^2$$

$$A = 2 \times 2 \text{ units}^2$$

$$A = 4 \text{ units}^2$$

EXAMPLE**1****Finding an Area Using Grid Paper**

What shapes make up this figure?

Triangles

Rectangles

Squares

Small Rectangle

$$A = (3)(2)$$

$$A = 6 \text{ units}^2$$

Large Rectangle

$$A = (8)(3)$$

$$A = 24 \text{ units}^2$$

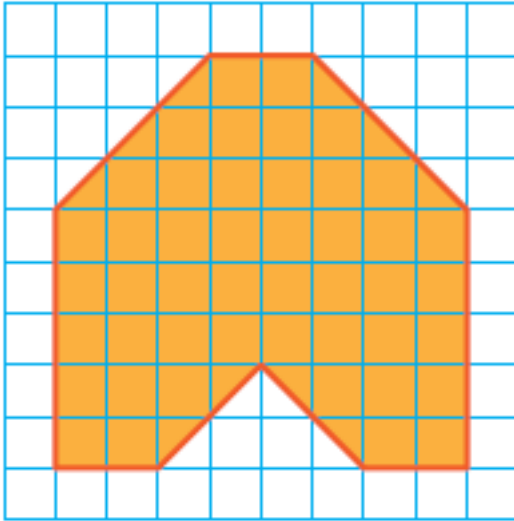
2 small squares

$$A = 2^2$$

$$A = 4 \text{ units}^2$$

$$A = 2 \times 4 \text{ units}^2$$

$$A = 8 \text{ units}^2$$

EXAMPLE**1****Finding an Area Using Grid Paper**

Area of Composite Figure

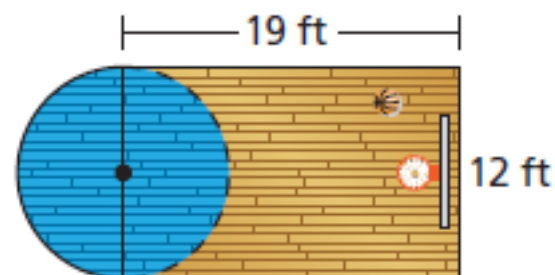
$$A = 9 + 4 + 6 + 24 + 8$$

$$A = 51 \text{ units}^2$$

EXAMPLE**2****Finding an Area**

Find the area of the portion of the basketball court shown.

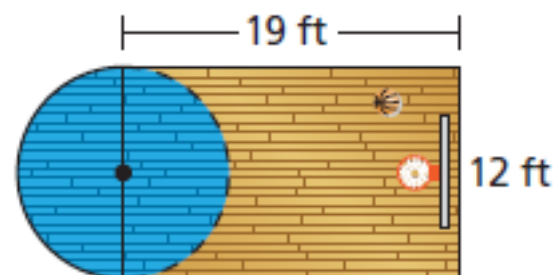
The figure is made up of a rectangle and a semicircle. Find the area of each figure.



EXAMPLE**2****Finding an Area**

Find the area of the portion of the basketball court shown.

The figure is made up of a rectangle and a semicircle. Find the area of each figure.



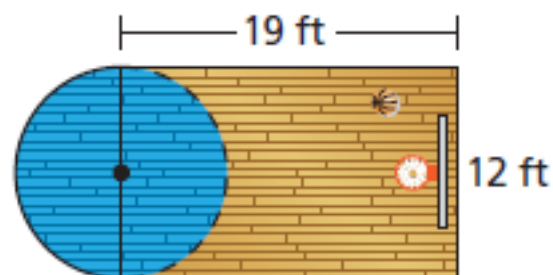
Area of Rectangle

$$A = \ell w$$

EXAMPLE**2****Finding an Area**

Find the area of the portion of the basketball court shown.

The figure is made up of a rectangle and a semicircle. Find the area of each figure.



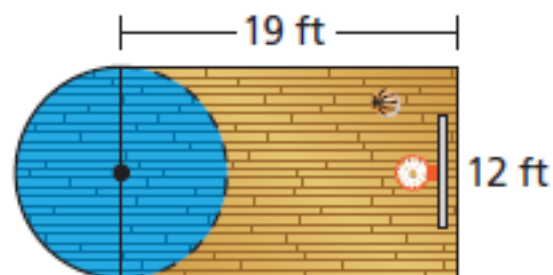
Area of Rectangle

$$\begin{aligned} A &= \ell w \\ &= 19(12) \end{aligned}$$

EXAMPLE**2****Finding an Area**

Find the area of the portion of the basketball court shown.

The figure is made up of a rectangle and a semicircle. Find the area of each figure.



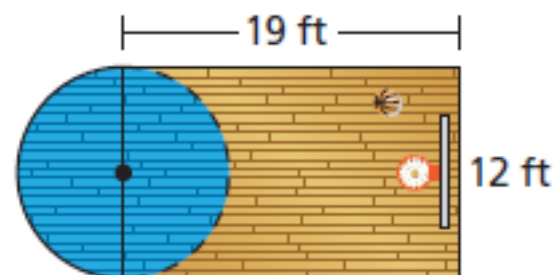
Area of Rectangle

$$\begin{aligned} A &= \ell w \\ &= 19(12) \\ &= 228 \end{aligned}$$

EXAMPLE**2****Finding an Area**

Find the area of the portion of the basketball court shown.

The figure is made up of a rectangle and a semicircle. Find the area of each figure.



Area of Rectangle

$$\begin{aligned}A &= \ell w \\ &= 19(12) \\ &= 228\end{aligned}$$

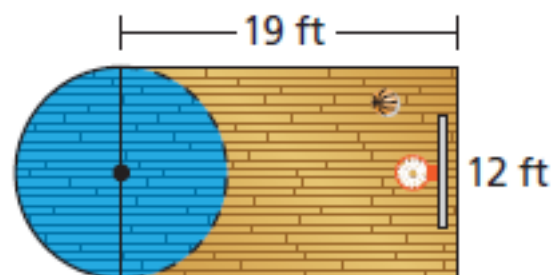
Area of Semicircle

$$A = \frac{\pi r^2}{2}$$

EXAMPLE 2 Finding an Area

Find the area of the portion of the basketball court shown.

The figure is made up of a rectangle and a semicircle. Find the area of each figure.



Area of Rectangle

$$\begin{aligned}A &= \ell w \\ &= 19(12) \\ &= 228\end{aligned}$$

Area of Semicircle

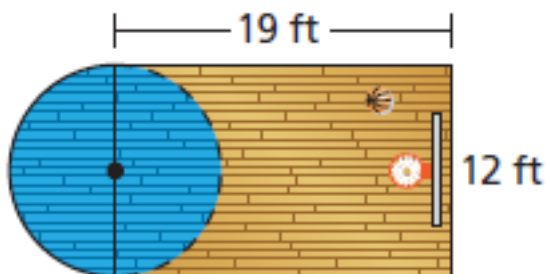
$$\begin{aligned}A &= \frac{\pi r^2}{2} \\ &\approx \frac{3.14 \cdot 6^2}{2}\end{aligned}$$

The semicircle has a radius of $\frac{12}{2} = 6$ feet.

EXAMPLE**2 Finding an Area**

Find the area of the portion of the basketball court shown.

The figure is made up of a rectangle and a semicircle. Find the area of each figure.



Area of Rectangle

$$\begin{aligned} A &= \ell w \\ &= 19(12) \\ &= 228 \end{aligned}$$

Area of Semicircle

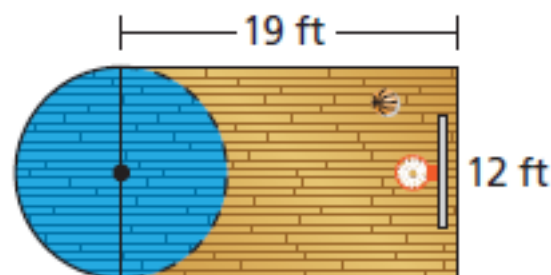
$$\begin{aligned} A &= \frac{\pi r^2}{2} \\ &\approx \frac{3.14 \cdot 6^2}{2} \\ &= 56.52 \end{aligned}$$

The semicircle has a radius of $\frac{12}{2} = 6$ feet.

EXAMPLE**2 Finding an Area**

Find the area of the portion of the basketball court shown.

The figure is made up of a rectangle and a semicircle. Find the area of each figure.



Area of Rectangle

$$\begin{aligned} A &= \ell w \\ &= 19(12) \\ &= 228 \end{aligned}$$

Area of Semicircle

$$\begin{aligned} A &= \frac{\pi r^2}{2} \\ &\approx \frac{3.14 \cdot 6^2}{2} \\ &= 56.52 \end{aligned}$$

The semicircle has a radius of $\frac{12}{2} = 6$ feet.

So, the area is about $228 + 56.52 = 284.52$ square feet.

EXAMPLE**2 Finding an Area**

Find the area of the figure.

The figure is made up of a triangle, a rectangle, and a parallelogram. Find the area of each figure.

Area of Triangle

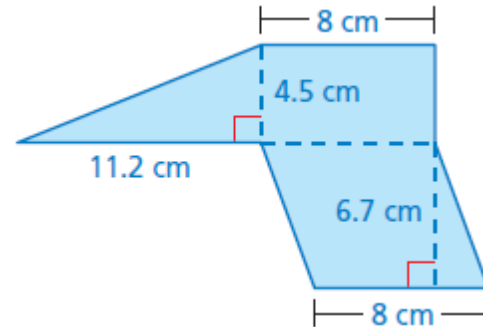
$$\begin{aligned} A &= \frac{1}{2}(11.2)(4.5) \\ &= 25.2 \end{aligned}$$

Area of Rectangle

$$\begin{aligned} A &= 8(4.5) \\ &= 36 \end{aligned}$$

Area of Parallelogram

$$\begin{aligned} A &= 8(6.7) \\ &= 53.6 \end{aligned}$$



So, the area is $25.2 + 36 + 53.6 = 114.8$ square centimeters.